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09/716,653	11/20/2000	Eric R. Alling	50807	8386

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EXAMINER

BELL, MELTIN

ART UNIT	PAPER NUMBER
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2121

DATE MAILED: 11/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/716,653

Applicant(s)

ALLING ET AL

Examiner

Meltin Bell

Art Unit

2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 November 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 November 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

This action is responsive to application **09/716653** filed **November 20, 2000**.

Claims 1-14 have been examined.

Information Disclosure Statement

Applicant is respectfully reminded of the ongoing Duty to disclose 37 C.F.R. 1.56 all pertinent information and material pertaining to the patentability of applicant's claimed invention, by submitting in a timely manner PTO-1449, Information Disclosure Statement (IDS) with the filing of applicant's application or thereafter.

Drawings

The United States Patent and Trademark Office of Draftperson's Patent Drawings Review have reviewed the formal drawings.

The drawings have not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is required in correcting any errors of which applicant may become aware in the drawings.

The drawings are objected to because:

- Item 11 is missing from FIG. 2. References in the specification to decision tree 11 starting at page 5, paragraph 3 should be corrected as well (i.e. decision tree 5).

It is also noted that the naming convention in FIG. 2 changes at D(30).

Art Unit: 2121

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is required in correcting any errors of which applicant may become aware in the specification.

The disclosure is objected to because of the following informalities:

- The image item naming convention started on page 6, paragraph 2 shouldn't conflict with the item numbers in FIG. 1.
- Page 6, paragraph 2 isn't clear how or why the navigation of decision tree ends at resolution point R(24) or R(26). How the tree is traversed from D(2), D(4), D(8) and D(30) should be detailed in justifying the resolution points.
- The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following title is suggested: Image based fault diagnosing system.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-14 are rejected under 35 U.S.C. 101 because the disclosed invention is inoperative and therefore lacks utility. Claims 1-14 are not claimed to be practiced on a computer nor are they stored in a computer readable medium.

As systems, claims 1-9 are not in the technological arts because they can be incorporated on paper with pen or pencil, in a printed manual, within one's head, etc.

As methods, claims 10-14 offer abstract ideas (e.g. "user interface", "images", "queries") that are also not applied in the technological arts. Abstract ideas and their manipulation constitute "descriptive material" that is not patentable, *Warmerdam*, 33 F.3d at 1360, 31 USPQ2d at 1759 and *Schrader*, 22 F.3d at 292-93, 30 USPQ2d at 1457-58, respectively. If the abstract ideas of claims 10-14 represented functional descriptive material consisting of data structures and computer programs which impart functionality when employed as a computer component (recorded on some computer readable medium), they become structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. For examples,

- *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) offers claim to data structure stored on a computer readable medium that increases computer efficiency held statutory and
- *Warmerdam*, 33 F.3d at 1360-61, 31 USPQ2d at 1759 offers product-by-process claim to computer having a specific data structure stored in memory also held statutory while

Art Unit: 2121

- *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 offers claim to a data structure *per se* held nonstatutory.

Because the claims are not claimed to be practiced on a computer and/or stored on a computer readable medium, they are not limited to practical applications in the technological arts. Specifically, the claims are systems and methods without any particular practical application, such as a program running on a computer and stored in a computer readable medium or memory. On that basis alone, those claims are clearly nonstatutory.

Claims 1-14 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a credible asserted utility or a well established utility. Claims 1-14 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a credible asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

Claim Rejections - 35 USC § 112

To expedite a complete examination of the instant application, the claims rejected under 35 U.S.C. 101 (nonstatutory) above are further rejected as set forth below in anticipation of applicant amending these claims to place them within the four statutory categories of invention.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

Art Unit: 2121

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Support for this 35 U.S.C. 112, first paragraph rejection comes from MPEP

2164.07(I)(A):

"As noted in *In re Fouché*, 439 F.2d 1237, 169 USPQ 429 (CCPA 1971), if "compositions are in fact useless, appellant's specification cannot have taught how to use them." 439 F.2d at 1243, 169 USPQ at 434. The examiner should make both rejections (i.e., a rejection under 35 U.S.C. 112, first paragraph and a rejection under 35 U.S.C. 101) where the subject matter of a claim has been shown to be nonuseful or inoperative. The 35 U.S.C. 112, first paragraph, rejection should indicate that because the invention as claimed does not have utility, a person skilled in the art would not be able to use the invention as claimed, and as such, the claim is defective under 35 U.S.C. 112, first paragraph."

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 10-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 doesn't identify where the "viewing..." and "selecting..." limitations occur with respect to Claim 10's steps a-d. It is unclear whether the additional limitations should be placed after step a, before step d and/or after step d.

Claim 12 doesn't identify where the "viewing..." limitation occurs with respect to Claim 10's steps a-d. It is unclear whether the additional limitations should be placed after step a, before step d and/or after step d.

Claim 13 doesn't identify where the "presenting..." limitation occurs with respect to Claim 10's steps a-d. It is unclear whether the additional limitations should be placed after step a, before step d and/or after step d.

Claim 14 doesn't identify where the "presenting..." limitation occurs with respect to Claim 10's steps a-d. It is unclear whether the additional limitations should be placed after step a, before step d and/or after step d.

Claim Rejections - 35 USC § 102

To expedite a complete examination of the instant application, the claims rejected under 35 U.S.C. 101 (nonstatutory) above are further rejected as set forth below in anticipation of applicant amending these claims to place them within the four statutory categories of invention.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by *Hekmatpour* U.S. Patent Number 5,644,686 (July 1, 1997).

Regarding claim 1:

Hekmatpour teaches,

- a decision tree having a plurality of decision points wherein at least some of said plurality of decision points terminate in a resolution point representing a diagnosis for said fault (column 4, lines 52-64, "the invention comprises... the action level"; column 6, lines 1-10, "In a diagnostic...the final system")
- a plurality of queries each having at least a first response and a second response, each of said plurality of queries being associated with one of said plurality of decision points (column 12, lines 47-51, "Whenever the user...node's WHY attribute")
- a knowledge base, said knowledge base including a plurality of first images, each of said plurality of first images illustrating one of said first responses (column 12, lines 52-55, "Compile a list...or graphics information")
- a user interface for presenting said plurality of queries and said illustrative first images to a user (column 20, lines 57-65, "These services include...graphical user interface")
- said decision tree is navigated by said user responding to at least some of said plurality of queries by viewing said illustrative first images and selecting between said first response and said second response associated with said at least some of said queries (column 25, lines 19-24, "Images or components...or image selectable")
- said fault is diagnosed by said user navigating said decision tree until said resolution point is reached (column 27, lines 58-67, "These modules usually... Condition Action Trees")

Art Unit: 2121

Regarding claim 2:

Hekmatpour further teaches,

- said knowledge base includes a plurality of second images, each of said plurality of second images illustrating one of said second responses (column 25, lines 19-24, "Images or components...or image selectable")
- said user interface presents said illustrative second images to said user (column 5, lines 21-25, "The hypergraphic processing...the display means")
- said user responds to said at least some of said plurality of queries by viewing said illustrative second images (column 20, lines 2-13, "Such a case-base...selectable list box")

Regarding claim 3:

Hekmatpour further teaches,

- said knowledge base includes a diagnostic image illustrating said diagnosis of said fault wherein when said user reaches said resolution point, said user interface presents said diagnostic image to said user (column 22, lines 15-24, "The summary window...of each other"; FIG. 15)

Regarding claim 4:

Hekmatpour further teaches,

- said knowledge base includes a resolution of said fault and wherein when said user reaches said resolution point, said user interface presents said resolution to said user (column 12, lines 47-51, "Whenever the user...node's WHY attribute")

Regarding claim 5:

Hekmatpour further teaches,

- said knowledge base includes a description of said fault and wherein when said user reaches said resolution point, said user interface presents said description to said user (column 17, lines 1-15, "A node in... animation, audio, video")

Regarding claim 6:

Hekmatpour further teaches,

- said decision tree includes a plurality of resolution points each representing a diagnosis for one of a plurality of faults (column 17, lines 1-15, "A node in... animation, audio, video")
- said knowledge base includes a plurality of diagnostic images, each of said plurality of diagnostic images illustrating said diagnosis for one of said plurality of (column 22, lines 15-24, "The summary window... of each other"; FIG. 15)
- said fault is diagnosed by said user viewing at least some of said plurality of diagnostic images and selecting said resolution point representing said diagnosis of said fault (column 24, lines 19-26, "A logical page... to the user"; column 27, lines 56-67, "Active training modules... Condition Action Trees")

Regarding claim 7:

Hekmatpour further teaches,

- a plurality of resolutions points, each of said plurality of resolution points representing a diagnosis for one of a plurality of faults (column 4, lines 52-64, "the invention comprises... the action level"; column 6, lines 1-10, "In a diagnostic... the final system")

Art Unit: 2121

- a knowledge base including a plurality of diagnostic images, each of said plurality of diagnostic images illustrating said diagnosis for one of said plurality of faults (column 12, lines 52-55, "Compile a list...or graphics information")
- said fault is diagnosed by viewing at least some of said plurality of diagnostic images and selecting said resolution point representing said diagnosis of said fault (column 25, lines 19-24, "Images or components...or image selectable")

Regarding claim 8:

Hekmatpour further teaches,

- said knowledge base includes a resolution of said fault and wherein when said resolution point representing said diagnosis of said fault is selected, said resolution of said fault is output by the system (column 12, lines 47-51, "Whenever the user...node's WHY attribute")

Regarding claim 9:

Hekmatpour further teaches,

- said knowledge base includes a description of said fault and wherein when said resolution point representing said diagnosis of said fault is selected, said description of said fault is output by the system (column 17, lines 1-15, "A node in...animation, audio, video")

Claim Rejections - 35 USC § 103

To expedite a complete examination of the instant application, the claims rejected under 35 U.S.C. 101 (nonstatutory) above are further rejected as set forth below in anticipation

Art Unit: 2121

of applicant amending these claims to place them within the four statutory categories of invention.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the Office presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the Office to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Hekmatpour*. (July 1, 1997) in view of *Oda* U.S. Patent Number 5,127,005 (June 30, 1992) and further in view of *Kuji et al* (September 1990).

Regarding claim 10:

Hekmatpour teaches,

- a) receiving at least one of said plurality of queries and said at least first response and

Art Unit: 2121

said second response (column 12, lines 47-51, "Whenever the user...node's WHY attribute")

- b) viewing one of said plurality of first images illustrating said at least first response (column 12, lines 52-55, "Compile a list...or graphics information"; column 20, lines 57-65, "These services include...graphical user interface")

- c) selecting between said first response and said second response based on said one of said plurality of first images (column 25, lines 19-24, "Images or components...or image selectable")

- repeating steps for knowledge verification (column 12, lines 65-67, "Verify the knowledge...checked for syntax"; column 13, lines 1-24, "violations, conflicts, and...a manufacturing process") and in the knowledge processing algorithm (column 17, lines 29-48, "Given a problem...ground level space"; FIG. 10; column 19, lines 7-43, "Step 0: Given... Return to step 2").

Oda et al teaches,

- repetition for making fault diagnosis efficient (column 5, lines 27-45, "In this fault...tree are reached")

However, *Hekmatpour* and *Oda et al* don't explicitly teach repeating steps a-c until said resolution point is reached while *Kuji et al* teaches

- repeating three steps until faults no longer appear (page 1051, STEP 2 through 5, "STEP 2: A navigation map...go to step 2")

Motivation – The portions of the claimed method repeating steps until a resolution point is reached would have been a highly desirable feature in this art for

Art Unit: 2121

- Decreasing diagnostic effort (*Kuji et al*, page 1049, Introduction, paragraph 3, sentence 2, "Since many internal...little diagnostic effort")
- Smoothing interaction between the user and expert knowledge base system (*Oda et al*, column 14, lines 67-68, "the fault diagnosis...present invention re-"; column 15, lines 1-5, "peatedly carries out...the machine trouble")
- Solving multiple problems (*Hekmatpour*, column 17, lines 29-48, "Given a problem...ground level space")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine *Hekmatpour* with *Oda et al* and *Kuji et al* to obtain the invention specified in claim 10, repeating steps a-c until a resolution point is reached. The modification would have been obvious because one of ordinary skill in the art would have been motivated to solve multiple problems efficiently using a looping construct.

Regarding claim 11:

Rejection of claim 10 is incorporated and claim 11's further limitations are taught in *Hekmatpour* when repeating steps a-c until a resolution is reached,

- viewing one of said plurality of second images illustrating said second response (column 12, lines 52-55, "Compile a list...or graphics information"; column 20, lines 57-65, "These services include...graphical user interface")
- selecting between said first response and said second response based on said one of (column 25, lines 19-24, "Images or components...or image selectable")

Art Unit: 2121

Regarding claim 12:

Rejection of claim 10 is incorporated and claim 12's further limitations are taught in

Hekmatpour by repeating steps a-c,

- viewing said diagnostic image (column 25, lines 19-24, "Images or components...or image selectable")

Regarding claim 13:

Rejection of claim 10 is incorporated and claim 13's further limitations are taught in

Hekmatpour when repeating steps a-c until a resolution is reached,

- presenting said resolution of said fault (column 12, lines 47-51, "Whenever the user...node's WHY attribute")

Regarding claim 14:

Rejection of claim 10 is incorporated and claim 14's further limitations are taught in

Hekmatpour when repeating steps a-c until a resolution is reached,

- presenting said description of said fault (column 17, lines 1-15, "A node in...animation, audio, video")

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- *Hekmatpour*, U.S. Patent Number 5,644,686
- *Oda et al*; U.S. Patent Number 5,127,005
- *Hoeller*, U.S. Patent Number 5,497,335

- *Ramani et al* U.S. Patent Number 6,275,559
- *N. Kuji, K. Matsumoto*; "Marginal fault diagnosis based on e-beam static fault imaging with CAD"; International Test Conference Proceedings; 10-14 Sept. 1990; pp 1049 - 1054
- *L.G. Allred, G.E. Kelly*; "A system for fault diagnosis in electronic circuits using thermal imaging"; IEEE Systems Readiness Technology AUTOTESTCON '92 Conference Record; 21-24 Sept. 1992; pp 455 -458

Any inquiry concerning this communication or earlier communications from the Office should be directed to Meltin Bell whose telephone number is 703-305-0362. This Examiner can normally be reached on Mon - Fri 7:30 am - 4:30 pm.

If attempts to reach this Examiner by telephone are unsuccessful, his supervisor, Anil Khatri, can be reached on 703-305-0282. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

MB



ANIL KHATRI
SUPERVISORY PATENT EXAMINER